



Exelon Generation Company, LLC  
Braidwood Station  
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December 7, 2012  
BW120120

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

Braidwood Station, Units 1 and 2  
Facility Operating License Nos. NPF-72 and NPF-77  
NRC Docket Nos. STN 50-456 and STN 50-457

Subject: Reply to a Notice of Violation; 05000456/2012004-03; 05000457/2012004-03

Reference: Letter from Eric R. Duncan (U.S. NRC) to Michael J. Pacilio (Exelon Generation Company, LLC), "Braidwood Station, Units 1 and 2, Nuclear Regulatory Commission Integrated Inspection Report 05000456/2012004; 05000457/2012004 and Notice of Violation," dated November 8, 2012

In the referenced letter, based on the results of an inspection completed on September 30, 2012, the NRC concluded that Braidwood Station was in violation of 10 CFR 50, Appendix B, Criterion III, "Design Control", which requires, in part, that design control measures shall provide for verifying the adequacy of the design, and that the design basis is correctly translated into procedures and instructions.

The NRC requested Exelon Generation Company, LLC (EGC) to respond to the Notice of Violation within 30 days of the date of the referenced letter. EGC does not contest the violation.

Attachment 1 to this letter contains EGC's response to the Notice of Violation. This letter contains new regulatory commitments, which are identified in Attachment 2.

If you have any questions regarding this reply, please contact Mr. Chris VanDenburgh, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

A handwritten signature in black ink that reads "Daniel J. Enright".

Daniel J. Enright  
Site Vice President  
Braidwood Station

Attachments: 1) Reply to Notice of Violation  
2) Summary of Regulatory Commitments

cc: Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Braidwood Station

## **ATTACHMENT 1**

### **Reply to Notice of Violation**

In a letter from Eric R. Duncan (U.S. NRC) to Michael J. Pacilio (Exelon Generation Company, LLC), dated November 8, 2012, the NRC issued a Notice of Violation. The violation of NRC requirements was identified during an NRC inspection completed on September 30, 2012. The violation is listed below:

Title 10 of the Code of Federal Regulations Part 50 (10 CFR 50), Appendix B, Criterion III, 'Design Control', requires, in part, that design control measures shall provide for verifying the adequacy of the design, and that the design basis is correctly translated into procedures and instructions.

Contrary to the above, from initial plant construction to September 30, 2012, the licensee failed to verify the adequacy of the design of the Braidwood Unit 1 and Unit 2 recycle holdup tanks, which are safety-related components subject to the requirements of 10 CFR 50, Appendix B, Criterion III, and failed to correctly translate the design basis of the Braidwood Unit 1 and Unit 2 recycle holdup tanks into procedures and instructions. Specifically, the license failed to evaluate the effect of dynamic loads on inlet piping from Unit 1 and Unit 2 residual heat removal system suction relief valves that discharge to the recycle holdup tanks and, as a result, failed to verify the adequacy of the recycle holdup tank design to withstand design loads that would result from a discharge of residual heat removal system suction relief valves into the recycle holdup tanks.

This violation is associated with a Green Significance Determination Process finding.

#### **Response:**

##### 1) Reason for the violation

The failure to restore compliance in a timely manner was caused by inadequate Engineering oversight and prioritization of dual site projects and over-reliance on existing multi-site Engineering Design processes to drive the issue to resolution. This is documented in the corrective action program in issue report 1404575. The delays were caused by linear prioritization of available resources based on perceived risk significance. Delay can be attributed to deficient "crew teamwork" under the classification of "supervision during work" (ref. TapRoot). Engineers at other sites took the lead to resolve this issue (Exelon plan for sharing of resources) and, in the beginning, there was insufficient Braidwood oversight of Lead Engineer progress. Braidwood personnel focused on other site priorities, permitting other personnel to "drive" final resolution.

Poor communication between the Site Points of Contact resulted in delayed Project Review Committee (PRC) approval for funding and EOC re-work of the required RELAP5 hydraulic analysis of the piping since the EOC focused on Byron piping subsystems and neglected to evaluate the Braidwood piping subsystems. This was partially the result of the original piping analysis feasibility study performed in 2009 using the Byron piping models as a cost-saving measure and the EOC using this study as the starting point for the final analysis. This resulted in a delay in completion of the RELAP hydraulic analysis. Braidwood has taken the Lead Role in resolution and is working directly with the EOC to complete the last remaining project segment.

2) Corrective steps that have been taken and the results achieved

The following corrective actions have been completed to address this issue:

- For the immediate protection of the Recycle Hold-up Tank (RHUT) from the effects of potential steam relief, station procedures were revised to ensure the relief piping to the RHUT remained covered by water whenever the RHUT was aligned to the relief header.
- A detailed evaluation of the RHUT under the conditions of potential steam relief from the Residual Heat Removal (RH) System relief valve was completed in February 2010. The evaluation was documented in calculation CN-CRA-09-29 to verify that the RHUT would be protected with appropriate submergence of the relief header discharge piping,
- A revision of the Exclusion Area Boundary (EAB), Low Population Zone (LPZ) and Main Control Room (MCR) dose calculation for RHUT failure was completed in September 2011 and documented in calculation BRW-10-0010-M.

This Design Issue is receiving elevated Senior Management oversight and support both within Exelon and the EOC. Further attempts to develop best-estimate relief valve opening characteristics have been suspended and known, conservative, valve response parameters will be used to permit timely completion of the RELAP5 model.

3) Corrective steps that will be taken

- The priority for final resolution of the identified issue has been elevated within both Exelon and the EOC to ensure the necessary piping analyses and any necessary piping system modifications are completed. The dynamic piping analysis will be completed based on existing, conservative, operating parameters by May 5, 2013.
- Plant modifications will be issued to 1) install low-point drains and vents to eliminate water traps in the exhaust piping where possible and 2) modify or add piping supports if necessary to address the calculated support loads. Issuance of the above modifications will be completed by August 16, 2013.
- Plant modifications will be installed by June 30, 2014.
- Issue resolution is not required for the Emergency Core Cooling System (ECCS) function of the RH system as system pressures in the injection and recirculation modes are not high enough to challenge the relief valve setpoint.

4) Date when full compliance will be achieved

Actions to restore full compliance will be completed by the end of the second quarter 2014 (June 30, 2014).

**ATTACHMENT 2  
Summary of Regulatory Commitments**

The following table identifies commitments made in this document. (Any other actions discussed in the submittal represent intended or planned actions. They are described to the NRC for the NRC's information and are not regulatory commitments.)

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC (Yes/No)
1. Exelon Generation Company, LLC (EGC) will complete the dynamic piping analysis based on existing, conservative, operating parameters.	May 5, 2013	Yes	No
2. EGC will issue plant modifications to:  1) Install low-point drains and vents to eliminate water traps in the exhaust piping where possible and 2) Modify or add piping supports if necessary to address the calculated support loads.	August 16, 2013	Yes	No
3. EGC will complete the required modifications by the end of the second quarter 2014	June 30, 2014	Yes	No